

# **JPL COMMENTS ON THE DISCOVERY PROPOSAL PROCESS**

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# STEP 1 TOPICS

- Cost cap and funding profile
- E/PO cost requirements
- Launch vehicle capabilities
- Hidden requirements in Program Library documents
- Page allocations
- Review process
- Missions of Opportunity (MoO)

# COST CAP AND FUNDING PROFILE

- Fixed cost cap eliminates good science
  - Without corrections for inflation, Discovery program capabilities will be seriously reduced
  - Problem is further exacerbated by increased conservatism on NASA's part regarding acceptable risk
  - Proposers feel compelled to top last winner
  - But having to do it with less effective buying power
  - Need to raise cap from \$299M or Discovery will be limited to increasingly mundane missions
- Next AO is expected to partially address this issue with a cap of \$325M
  - Only covers ~3% inflation rate since last AO
  - Does not cover possible increases in launch vehicle costs

## **COST CAP AND FUNDING PROFILE (CONT.)**

- Early funding profile was inadequate and seriously impacted several missions
  - “Previous review of project failures and overruns have blamed initial funding (Phase A/B) and short schedules. Limited initial Discovery funding and schedules follows the same path.”
  - Procurement of long-lead items is also discouraged, leading to more schedule risk

## E/PO COST REQUIREMENTS

- Cost requirements were out of place for a Step 1 proposal
  - Cost details increased by x10 over previous AO
  - Cost details incommensurate with costs equal to 2% of TMC
- E/PO is treated as a separate proposal
  - Different submission instructions (which were quite confusing)
  - Reviewed separate from the Science and TMC reviews, and at a separate institution
- These issues were raised at the pre-proposal conference
  - Discovery Program Office was sympathetic
  - Apparently, Code S E/PO office was not
- HQ non-responsiveness does not make for good will with the science community
- NOTE: Increased cost detail requirements and detachment from normal review process is not confined to Discovery

## E/PO COST REQUIREMENTS (CONT.)

### Suggestions:

- Eliminate requirement for separate electronic submission
- Bring E/PO review process in line with the rest of the TMCO process
- Eliminate current budget forms
  - Require costed, mission-specific, time-phased E/PO WBS
  - WBS is of the proposers' choice
  - Burden of submitting adequate detail lies with the proposer
  - Lack of detail will result in a poor evaluation
  
- NOTE: Based on subsequent Code S AO's some of these problems appear to be solved

# LAUNCH VEHICLE CAPABILITIES

- Allowable LV capabilities are published in hard-to-read graphical format
  - Mission capabilities depend on quality of printer, sharpness of pencil, mission designer's eyesight, etc.

## Suggestion:

- Publish LV capabilities in tabular format so teams can properly interpolate
- NOTE: Problem appears to be solved with the introduction of the KSC ELV Performance Estimation Web Site

## LAUNCH VEHICLE CAPABILITIES (CONT.)

- Arbitrary decrease in LV capabilities imposed by new NLS contract
  - Do not represent actual LV capabilities
- 11th hour decision
  - For Step 1, use reduced capabilities
  - For Step 2, use actual capabilities
  - Result: missions that otherwise might be Category 1, will be eliminated because of poor launch margins

### Suggestion:

- Allow use of actual, manufacturer-published LV capabilities

# HIDDEN REQUIREMENTS IN PROGRAM LIBRARY

- Several program library documents contain hidden requirements on proposal content beyond those in the Proposal Preparation Guidelines
- Example:
  - Space Operations Management Office (SOMO) services catalog requires additional telecom information for using DSN services
- Appears to be an increasing trend in the number of these hidden requirements

## Suggestions:

- Eliminate hidden requirements in program library documents
- Incorporate all requirements in the Proposal Preparation Guidelines
  - BUT... increase page allocations accordingly!

## PAGE ALLOCATIONS

- Increased page count for E/PO, New Technology, and SDB was a welcome relief
  - But no adjustments made for addition of Extended Mission (EM), Participating Scientists Program (PSP), and Data Analysis Program (DAP)

### Suggestion:

- Increase page count to take into account EM, PSP, and DAP
  - Specify information requested and location of discussion

# REVIEW PROCESS

- The stated Discovery goals, objectives, and evaluation process were reasonable
  - Minimal changes from previous round
  - Convergence (or at least constancy) is good
- Appears to be an inconsistency between program goals (i.e., low-cost, focused science) and the evaluation process in assigning major weaknesses
  - A proposal with excellent science done well within resources at low risk was rated Category 1
  - Yet, this proposal received a major weakness for not doing more science (which would put the mission well outside the cap)

## Suggestion:

- Program Scientist needs to ensure consistency in the process that assigns weaknesses

# MISSIONS OF OPPORTUNITY

- MOO'S add additional complexity to the AO
  - Requirements for MoO proposals only briefly addressed in App. B, “Guidelines for Proposal Preparation” (except the Cost section)
  - Not well integrated with the rest of the AO

## Suggestions:

- Re-work AO to further integrate MoO requirements
  - Create separate App. B for MoO's
  - Add compliance matrix to AO to differentiate mission and MoO requirements

## STEP 2 TOPICS

- NASA-directed changes in scope
- Arbitrary font change between Step 1 and Step 2
- Communications with NASA during the Concept Study
- Missions of Opportunity (MoO)

# NASA-DIRECTED CHANGES IN SCOPE

- Funding delays caused launch delays
  - Required larger launch vehicles
  - Required extended mission durations
- Additional requirements to respond to NASA Integrated Action Team (NIAT) recommendations
- Code S was extremely forgiving to NASA-directed scope changes
  - \$6M for NIAT
  - Additional augmentations allowed for problems associated with the funding delay (with appropriate justification)
- An excellent show of “good intention” and was much appreciated by the proposers

## ARBITRARY FONT REQUIREMENT CHANGE

- Step 1 had no requirements on font size for figures and tables
- Step 2 had requirement of 10 pt or greater for figures and tables
- Required extensive reformatting effort for Science and Science Implementation section at the expense of precious study award money

### Suggestions:

- Eliminate changes to format requirements between Step 1 and Step 2
- Return to requirement for figures and tables to be “readable”

# COMMUNICATIONS WITH NASA

- Communications with NASA after the blackout period were prompt and fair to all teams
  - Open to questions from proposers
  - When allowable, responses were quick
  - Appropriate Q & A's were posted on the web

# MISSIONS OF OPPORTUNITY

- Same issue as in Step 1
- MoO'S add additional complexity to the Concept Study
  - Requirements for MoO proposals only briefly addressed in Concept Study Report Guidelines (CSR G/L)

## Suggestions:

- Re-work CSR G/L to further integrate MoO requirements
  - Create separate CSR G/L for MoO's
  - Add compliance matrix to CSR G/L to differentiate mission and MoO requirements

## **SITE VISIT TOPICS**

- Growth in the number of written questions
- Creeping requirements on the Concept Study Report Guidelines
- Miscellaneous

# NUMBER OF WRITTEN QUESTIONS

- JPL experience with written questions on deep-space missions:
  - Steady increase in number of questions since 1997
  - Dramatic increase with this AO (and also PKB)
- The Evaluation Board delivers written questions to the proposal teams 3-5 calendar days in advance of the site visit
  - Teams tend to prepare a full day's worth of material that must be drastically modified once questions arrive
  - Difficult to plan site visits given uncertainty in number of questions and the fixed time allocation for the site visit
- NOTE: It appeared as if the number of telecom-related questions was out of all proportion to all other topics covered

## NUMBER OF WRITTEN QUESTIONS (CONT.)

### Suggestions:

- Limit the number of written questions
- Provide more time to respond to written questions
- Provide specific guidance on site visit contents to enable better planning

## CREEPING REQUIREMENTS ON THE CSR G/L

- Three recent proposals all had 3-4 very similar written questions that required the generation of new information
- Information requested is not meant to clarify information presented in the CSR
- It appears as if the mechanism for submitting written questions is being used to expand the scope of the CSR Guidelines
  - As a result proposal teams have a very limited time (3-5 calendar days) to generate new information that otherwise could have been generated during the four-month Concept Study period
  - These detailed requirements for new information are in addition to the already large number of clarifying questions

### Suggestion:

- Add new requirements to CSR guidelines to reduce burden of questions
  - BUT... increase CSR page allocations accordingly!

## MISCELLANEOUS

- NASA's response to the Sept. 11 interruption to the site visit schedule was rational and fair
- NASA Management Office (JPL) levied significant requirements on Concept Study Task Plan
  - Task Plan had to cover Phases A-E just to get \$450K